XIO3

Jan./Feb. 1993

A Newsletter produced by the Garden City Atari Computer Enthusiasts, 1003 Amphion St, Victoria, B.C. CANADA V8S 4G2

Editor's Mumblings...

Well, we have a packed 16 page issue for you this time. YES!! 16 Pages!!
We have lots of stuff in here like the Annual Financial Statement, Diagnosing ST Faults from our 'resident techie' Steven Lemmen, and other information-filled articles to whet your appetite for information. We also have the usual articles as well. I have recently upgraded my ST to 4 Mb of memory so now I can do all the things I wanted to before like lots of graphics!!
Graphics are an important tool used to visually augment the article it represents and you WILL be seeing more graphics in the future. Anyways, enjoy the newsletter and as a wise man once said, "Are you a Klingon, or is that a turtle on your head."

Chris Sherwood
Editor, XIO3

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GARDEN CITY A.C.E.

Annual Financial Statement for the year ending December 31, 1992

ASSETS		
Cash on Hand	101.00	
Bank of Montreal	468.86	
Prepaid Expenses	176.55	
Total		746.41
LIABILITIES		
Total		0.00
INCOME		
Membership Dues	950.00	
PSAN Sales	140.50	
Bank Interest	12.82	
Total		1103.32
EXPENDITURES		
PSAN Purchases	132.05	
Magazine Subscriptions	249.23	
Newsletter & Printing	195.92	
Postage	145.64	
Bulk Disks	60.51	
Room Rental	176.55	
Society Act Fees	15.00	
Office Supplies	53.54	
Bank Charges	36.58	
Miscellaneous	114.86	
Total		1179.88
SURPLUS/DEFICIT		
Deficit		76.56

8-bit SIG

Jan 24, 1993 - noon to 4 p.m.
7972 Galbraith Cres.
BE THERE!

G.C.A.C.E. EXECUTIVE

President: Gordon Hooper
Vice President: John Picken
Secretary: Rowland Grant
Treasurer: Mike Harrison
Editor: Chris Sherwood
ST librarian: Ted Skrecky
8-bit Librarian: George Rose
BBS Sysop: Bob Nex

CREDITS

The XIO3 is a publication of the Garden City Atari Computer Enthusiasts, 1003 Amphion Street, Victoria, B.C., V8S 4G2.

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MEMBERSHIP

Membership dues are $25.00 per year for family memberships. Membership includes a subscription to the club newsletter, XIO3, access to over 300 8-bit and 100+ ST disks, and if you are into telecommunications, increased time and upload/download ratio on the official club BBS, the Pothole BBS, (604) 642-6795, 3-2400 bps, 24 hours, 7 days.

MEETINGS

Meetings are held on the third Thursday of each month except December at the Saanich/Victoria Branch of the Victoria Public Library. Meetings start at 7 pm and usually run until about 9 pm. Copying of club disks, both 8-bit and ST usually takes place at meetings, unless the librarians cannot make it with their machines.

ADVERTISING IN XIO3

Members can place classified ads (ie: Buy, Sell, Swap) for computer related products free of charge.

Commercial advertisements must be submitted as camera-ready artwork and be pre-sized. Please mail the artwork along with payment in full to Garden City A.C.E. care of the editor. Newsletters are published in January, March, May, July, September and November. The deadline for submissions is the 10th of the month in which the newsletter is being published.

The rates for commercial ads are as follows: Full page - $15.00. Half Page - $8.00, Quarter Page - $5.00, Business Card - $3.00. Please call the Editor for additional information.

Peeking Around

by Gordon Hooper

... CyberSucker, as he is known on the Pothole, is still running amuck amongst the general population. TED SKRECKY now has his model of the Space: 1999 stun gun painted, but reports that he had to buy a lot of paint until he found some that would stick. Now his investment in the gun is up to $100. Note that this is a non-working model. Ted, I have a letter written by William Shatner to the producers of Star Trek promising to take acting lessons. Signed, even. I could be persuaded to part with it for $150, payable in cash, certified cheque or negotiable bonds. In other doings, all club members should have by now received a copy of the Garden City A.C.E. software catalogue. Both the 8-bit and ST versions were done solely and completely by Ted, and this was a major undertaking on his part. He also donated some of the disks used. Many thanks for all the hours invested in this project, Ted ... Speaking of the infamous Skreckies, DOUG cuts out cartoons from alternative (meaning dirty) newspapers in Vancouver and sends them to Ted, who passes them on to me. These are usually full of smut and licentious material which decent people like me try to avoid at all costs. However, the last batch of cuttings had no Velvets Record comic strip included. Please correct this oversight and don't let it happen again, Doug. Also, thanks for the Christmas card ... Welcome back to the club, RON BRACKENRIDGE. GEORGE ROSE says he told Ron that if he didn't join again, they couldn't play together anymore. George also mentions that the 8-bit SIG meeting will be held at his house (7972 Galbraith Crescent) again on January 24 from noon to 4 pm. Phone George at 652-0572 if you need more information. We've got to quit calling these meetings 8-bit SIG's because they are really just a social gathering open to any member of the club, no matter what kind of computer they have. In fact, a lot of our members with ST's still have and use their 8-bits ... MIKE HARRISON is stepping down as treasurer of G.C.A.C.E. because of health concerns. Consequently, we need someone to step in take on this job. Come to the January 21 annual election meeting if you are interested. Mike is experienced in bookkeeping methods and says he will help train the new treasurer if necessary. Thanks for the time and effort put in, Mike. By the way, all executive positions are open for nominations ... CHRIS SHERWOOD must have masochistic tendencies because now he says he is planning to set up his own ST BBS. He hopes to have it running around springtime. Watch this space for the phone number ... BOB NEX reports that the Pothole is down (hopefully back up by the time you read this) because of the fact his 120 megs of hard drive is filled up. He gave me a lot of mumbo-jumbo technical reasons why this happened, but suffice it to say that the board will reappear shortly. Keep trying. Another problem occurs with the North American and European nets on the board, but this is being worked on also. After taking a lot of abuse from Bob about how my favourite football team performed last year, I am happy to report the Seahawks did worse, only winning 2 games ... Be sure and phone Gord at 386-0857 with your smutty, licentious observances concerning G.C.A.C.E. members. Remember, everybody wants to see their name immortalized in print, and I'll report both the unsavoury occurrences and who reported them, unless they request anonymity, as JOHN PICKEN frequently does ...

WE'RE OFF TO SEE THE WIZARD...

By: Douglas Skrecky

My famous, omnipotent brother visited me in Vancouver recently. What did we decide to do? We might have tried to close some real estate deals, flip 'em for a profit and use the proceeds to make a take over bid for the Reichman brother's empire. "Nah, I've got enough real estate on the books already in Victoria," brother Ted objected. "How about renting some policemen costumes and making some high profile drug busts on the east side," I suggested? "Nope, have enough drugs already - got TWO large chocolate bars for christmas loaded with caffeine." said Ted. "How 'bout painting the town, get disgustingly drunk and break the hearts of a least half a dozen beautiful babes apiece in the process?" "Done it already." exclaimed Ted, who had already been in town for 4 hours. Suddenly a strange light came into bro's eyes. "Let's go visit Wizard Computers!" Totally OZ-like I agreed. "Lets do it!"

So we snapped our fingers, rolled our eyes 3 times, burbed twice and we were there. "Wizard Computers," said the sign in the alley way. This must be it, we agreed. We went in and then were immediately confronted with an unimaginable horrifying discovery. Wizard computers was actually selling PC clones! "You guys used to be the oldest, most loyal Atari dealers in the world," grumbled Ted, while frantically scanning the shelves for Atari ST software titles. He kept the salesmen busy while his brother acquired the funds needed to make a purchase from a nearby cash register. Ted had a long interesting chat with the proprietor about when the next shipment of Atari computers was coming in. I think Ted wanted to rob the stagecoach that carried them as he seemed disappointed to hear that Atari was no longer selling computers to Wizard Computers. "Too bad," Ted lamented as his brother stuffed porno - I mean computer mags in his jacket. There was this Arkanoid game in the close-out bin going for just $10. A roll of quarters was used to purchase the software. "Gee, thanks a lot guys, we just ran out of quarters," the cashier gushed. Good price isn't it? Ya, Ted agreed, it's a steal.

Atari News & Rumors

by Rowland Grant

Nothing seems to be happening! As I write this, no Atari Falcon computers have been reported to be seen for sale in any country. Oh, there are ads for the Falcon in various magazines. But the ads go into the publishers months before publication. The dealers were preparing for the holiday trade on the basis of a promise from Atari. A promise that Atari has been unable to keep. Something has delayed production, or perhaps distribution. There were some vague rumours about custom chip problems, but Atari is keeping mum. We do know that the multitasking part of the Falcon's TOS operating system is still being debugged. But the Falcon display models seemed to work perfectly well with the existing TOS. So that's not the problem. Another rumour is that the Falcon case design is being changed, that a "new look" Falcon will be "in the mass market" by March '93. Looking back at statements by Atari representatives, I see that up to fifty thousand Falcon computers were to be sold in 1992 and another three hundred thousand in 1993. More recently, the figures have been revised to three hundred and fifty thousand in 1993. So in spite of official statements that thousands of Falcon computers are on the shelves now in Britain and Germany, Atari knew that there would be none for 1992.

But there's more to it. Irwin Stumpf has resigned. He was the head of Atari Germany. Irwin has been credited with making the Atari ST significant in the German computer market. The profits of Atari Germany helped keep Atari Corp afloat in the last few years as its market dwindled in North America. There is a rumour that Irwin Stumpf, a long time friend of Jack Tramiel, finally gave up when head office decided to make severe cuts in the staff of Atari Germany. Another rumour is that Irwin strongly opposed a decision to delay the release of the Falcon computer. One can understand Irwin's frustration, after all he had been charged with restoring Atari's fortunes in Germany and then he was denied the means to do it. If Irwin Stumpf felt that the Falcon could have been released, then the delay may not be due only to a component or design problem. Perhaps the Atari management have changed their minds for some other reason. Last August, Atari representatives seemed positive and definite that Falcon computers would be in the stores by December at the latest. The new Falcon computers were shown off at computer fairs in a number of countries. So I suspect that the decision to delay was made recently, say in October, in response to what? Well, more on this later.

So what's happening to Atari Corp? The financial report for the second quarter of 1992 shows sales of 23 million, down from 49 million last year. But the second quarter loss was 39 million! Wow, losing more money than you grossed is quite a feat! However, it's not as bad as it looks. The loss that Atari reported is due to the sale of warehouses of old unsold equipment and software, much of it old 8-bit computer parts and game machines. In fact the present Atari Corp probably didn't pay for most of the stuff. However,when they liquidated this stock they got some useful cash and a future 34 million write down on taxable income. The losses were really about five million, maybe less. This year (1992) Atari has been selling its assets. The factory in Taiwan was sold at a good profit. But it's not generally known that Atari's European factory in Northern Ireland was sold too. And there's more retrenchment. All of the smaller Atari international offices have been closed, and staff elsewhere has been cut back severely. There are rumours that even those who were developing future models of the Falcon computer are now looking for work. Indeed the rumours go further on the matter, suggesting that the Falcon040 is ready for production and will be released in the summer of '93. There are even rumours that the '040 will have a case and keyboard similar to the TT.

Atari has been cutting its product lines. The ST Book, which was in very limited production, has been withdrawn and may be redesigned with a backlit screen. And then, maybe not. Unix development for the TT has been put on hold, although it was about ready for release. So there will be no TT work stations using UNIX. Atari has abandoned the PC clone market. A good idea, there's almost no profit left in it. On the other hand, Sam Tramiel has stated that the current STE lines, including the Mega STE will continue to be produced (if there is a demand). Another Atari representative has inferred that they are in production now.
You wouldn't know that around here!

To my knowledge, there are no new ST computers for sale in Victoria. There may be few if any in Vancouver too. Wizard Computers (an official Atari dealer in Vancouver) had lots of STE stock last summer but it's all gone now. Orders to Atari in Sunnyvale for more stock have gone unanswered. Wizard keeps an old 520ST to demonstrate software. Otherwise there is nothing Atari available. But there is demand, so Wizard is selling used ST's when it can get them. I have heard that some Atari dealers in Toronto have reported the same problem with Sunnyvale. Locally, Tesseract is an Atari dealer and will order Atari computers for you. Someone ordered a TT through them. I understand that Tesseract phoned Atari in Sunnyvale, asked for someone in sales, but nobody in sales was available to take the call! And Atari hasn't phoned back. So Gordon Hooper, our intrepid club president, looking for a new STE, wrote Atari and asked where in Canada (or where in Hell) he could get one. He received a form letter directing him to B & C Computer Visions in California (not far from Hell, some say). Hey, I seem to remember that Atari sold its California warehouses too. Maybe they don't have any computers on hand to sell!

And that may not be far from the truth. There is a rumour that Atari representatives have contacted key dealers to determine the existing stock of TT computers. In these conversations it has been admitted that Atari has exhausted its own stock of TT's. Further, there has been no production of the TT line for some time. It seems likely that there has been no production of any Ataricomputers since the factories were sold last spring. Atari has to have contractors make all of its computers now. When the factories were sold, Atari was talking of releasing the

con't on page 5

con't from page 4

Falcon. At that time it would make sense to have its contractors tool up to manufacture the Falcon line first. After all, at that time there was lots of STE and TT stock on hand. But for some reason Atari decided to delay the release of the Falcon until summer, then November, and now possibly March '93. So, with the existing STE/TT stock almost exhausted, and the production line tied up with a Falcon computer that is not ready to sell, Atari has almost backed itself out of the computer market. Only the Lynx game player is available in quantity this holiday season.

The Atari display at COMDEX in Las Vegas in November was fairly large, but a bit off the beaten track. There were no STE's on display, only Falcons and TT's. Some developers were present and at least one, HISOFT, was showing an art program for the Falcon. However, the big news was Kodak's interest in the Falcon. Kodak produces a system where you can take a roll of film to be developed and get the pictures digitized on a compact disk. With an appropriate player you can use your TV as a slide projector. Kodak's system also makes it possible to use a computer to merge the photo images with other electronic media. A suitable PC or a Macintosh with a CD drive can be used for this purpose, but neither caters to the home market. Kodak sees the Falcon as an excellent vehicle to move photo image manipulation into the home. After all, the Falcon can run its images onto any colour TV. If Kodak includes the occasional Falcon in its ads, this would be a huge boost for Atari. But it's an opportunity that could evaporate quickly.

As Atari fiddles, the third party market burns. According to the editorial in the fall 1992 AIM magazine, this last summer was the worst ever for Atari developers and dealers. Also the recession knocked out two of AIM's distributors, taking some of AIM's money with them. The declining advertising and the financial losses have forced AIM to reduce the number of issues per year. There has been no winter issue and according to rumours, the next issue of AIM will be out in March. Patty Rayl, AIM's managing editor is starting a new on-line magazine. It will not be Atari oriented. She has bought a Macintosh system. In Germany, the Atari Journal will cease publication in January '93. The reasons given are the rapid decline in subscribers and advertisers. Of course, this is only one of a number of Atari oriented computer publications in Germany, but the trend is not good. Over here again, Double Click Software is ceasing commercial activities, apparently the financial returns were no longer worth the effort. Double Click is turning its own software over to the public domain. Software not written by the "Double Click Four" but sold by Double Click may be marketed by others. While there is still development of games for the ST in Britain and France, the rapid decline in Atari hardware sales this year has made new games scarcer. In fact, some of the major game distributors expect support for the Amiga to fail also, possibly within the next six months. Interesting, but cold comfort for Atariusers.

Gribniff Software seems to feel that there is some life in the Atari market and may soon release Neodesk 4. Other software suppliers such as Interlink are also said to be ready to release upgrades and new titles. But much will depend on how well the Falcon flies. If it does, there could be a lot of software upgrades. Newell Industries, a long time Atari 8-bit supporter, has branched out into the ST market. The Newell Tab TOS Adapter Board enables any ST owner to upgrade to any TOS chip, up to one megabyte in size, without rewiring after initial installation of the board. The price is around $30 without the ROM chips. The chips for TOS 2.06 are available for around $100. There has not been too great a rush for these chips in North America. CodeHead sells upgrade boards with ROMs and has lots on hand. This is fortunate for Dareck Mihocka. His GEMulator board requires TOS chips in order that his ST emulating software will run on a fast PC. Atari's Bob Brodie is on record as saying that as long as Dareck buys genuine Atari TOS chips it is all right with Atari. However, Atari has now told Dareck that it has no ROM chips to sell to him. Without the help of CodeHead, Dareck would have had to abandon his GEMulator business. There is no love lost between Dareck and Atari. When asked for the real reason he created GEMulator, Dareck has been quoted (Computer Paper Dec/92) as saying: "I've hated Atari ever since they hassled me about the 8-bit emulator... This is my revenge."

Of course 8-bit users have been abandoned by Atari for at least a year. The final blow is that Atari Explorer magazine will drop 8-bit topics, if and when they start publishing again. Not that anyone will notice. The first issue of Atari Classics magazine (8-bit only) has been distributed. It is a fine publication, looking much like AIM and Current Notes. Atari Classics costs $30(US) per year to get it here in Canada. It merits the support and participation of all 8-bit users. While Atari XE computers have been out of production for years, there seem to be enough around still to support a growing market in Eastern Europe, including what was East Germany. A new programming language called "Quick" has been released for Atari XL/XE computers in Germany. Quick is said to have an enthusiastic following who support a disk-based "Quick Magazine". It is a fortunate name choice, quick also means alive.

A hands-on review of the Falcon computer in the December ST Format may have provided a clue as to why the Falcon has not been sent to dealers. Apparently the Falcon's sound chip is not handled in quite the same manner as the ST sound chip. This is not surprising considering the Falcon's superior sound capabilities. This means that any ST program that accesses the ST sound routines may crash when run on a Falcon. So just about all the current ST games will not run on the Falcon. There are also a number of other sources of incompatibility. Of course, there is a good amount of ST software that will run on a Falcon without any trouble. I gather that Atari is aware of these incompatibilities. And there are conflicting signals as to how they will respond. One response is that Atari will leave compatibility up to the software publishers.This is the policy urged by Atari Germany. After all, games are not a big ST item in Germany since there are many business and institutional users. Some of the larger German software houses have had Falcon prototypes for awhile. There may be some major software titles for the Falcon ready to go. Indeed, Atari is now talking about bundling software with the Falcon.

But from Atari in Sunnyvale there are rumours that there will be changes in the Falcon itself which will make the Falcon and the ST more compatible. Some months

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con't from page 5

back, Atari was making statements that the Falcon was a serious machine. Then there were statements about the Falcon being a home computer and that Atari was targeting new users. This implied that ST compatibility wasn't a major consideration. Atari management got away with that attitude years ago, but it won't work now (and perhaps they realize it). The only market that is even aware of Atari or interested in the Falcon is the current ST user base, particularly the home user. Games are often an important part of private ST software collections. Atari can't afford to be rejected by the home ST users. Neither does Atari have enough resources to survive the publicity of an initial rejection of the Falcon. A reasonable level of compatibility with the ST is a must. I suspect that this is why Atari had to delay the release of the first production run of the Falcon and has (it is rumoured) placed further production on hold. The decision is understandable, but if they can make changes to improve the Falcon's compatibility with the ST, why didn't they do it before going into production? Well, I guess that we'll never know. But there are rumours that Leonard Tramiel has been "unassigned". And another family member, Garry Tramiel has joined the executive suite.

According to Bob Brodie of Atari, there are two reasons for the delay in the Falcon's release. One reason is that they wanted to wait until the software that they had commissioned for the Falcon was ready. With the software on hand, the Falcon should be in the stores before March 1993. The second reason, he was not free to divulge. But he said that there was no problem with the Falcon's hardware. Of course that is true, in itself the Falcon works well. Another reason for delay would be the requirement of FCC licensing in the U.S. According to Atari, the Falcon passed its tests for class B, however, a FCC certification number has not been issued. In December, perhaps several hundred Falcon computers were delivered to the smaller software developers. Some of these Falcons were delivered in the U.S. These models had the North American video output, so we may assume that there are Falcon computers in storage somewhere, ready for the U.S. market.

Atari Corp is a business that appears to be run by one family and its friends. There are obvious strengths and weaknesses in such a situation. Considering the difficulties faced by all computer manufacturers these days, the survival of Atari up to now is likely due to the strengths of this "family compact": the Tramiels will not give up without a fight. The missed opportunities, neglect (of customers and dealers and developers), pettiness, and policies based on a bit of vain glory (business is war!) derive from the personalities of the Tramiels. But at least Atari has a human face. And considering the past, I would judge the Tramiel management record to be better than that of its predecessors. We Atari users are like spectators at a game, rooting for our side. We also razz the coach and players when they make mistakes. But there may be still enough time for our team to win the game, or score well enough to stay in the league. And we want

Club Meetings

by Rowland Grant

The November General Meeting featured me demonstrating XFORMER 2.55. My talk is covered (I hope) in an article in this issue. So nothing more need be said, other than that the XFORMER works much better in low res on Ted's colour monitor than in high res on my monochrome. And that's it for general meetings in 1992.

The executive committee was active however. At the conclusion of its December meeting, there was a little party. This year it was fairly sedate, probably due to the mostly low caloric drinks we brought. Not like last year when Gord made some deceptive punch!

John Picken reported that Club Cenacle in France has resumed publication of its newsletter. Club Cenacle is the leading 8-bit Atari club in France. We are very glad to see them back in action. Our Club has taken out a subscription to Atari Classics magazine and the Atari Classics disks. Atari Classics (an 8-bit only magazine) needed 500 subscribers before January to go ahead with six issues for 1993. So it's a bit of an act of faith on our part, but we will see what happens. We receive the Ol' Hackers magazine disk. Copies of it are placed in our 8-bit library. This magazine provides a good view of the Atari 8-bit world and is recommended reading. They also sneak a few useful programs in between the text files on the disk.

Another of our subscriptions is to AIM magazine. It was our bad luck that AIM decided to cut back on its publication just when we began our subscription. We received two issues of AIM. However, that seems to be all that they have published since June. We probably have received copies of most of the AIM disks published since June. Nothing has arrived from them for the last two months. New Atari User continues to arrive from Britain. It has forgone its multi-coloured covers, otherwise it's just as good as ever.

Ted Skrecky, our ST librarian has been actively searching out new software on distant bulletin boards. The executive has agreed to reimburse the librarian (partially) for those long distance downloads provided that downloading costs less than buying PD disks of similar software. We have decided to continue to meet in the Saanich Public Library (if the rent isn't raised too high), and we have booked the room for another year.

VICTORIA FREE-NET ASSOCIATION

By: Gordon Hooper

A new bulletin board system is up and running in Victoria, the Victoria Free-Net Association, or VIFA. It is modeled after the original Cleveland Free-Net. This was founded in 1986 by Dr. Tom Grundner, who has Masters degrees in human learning and education and a Doctorate in education philosophy. He is also very active with micro-computers and telecommunications and envisioned a BBS patterned after PBS television in the USA.

When book prices went down and a rise in literacy occurred during the 1800's, free libraries became established as a means of teaching and informing the public and are common today. Dr. Grundner wants to do the same thing through micro-computers now that they are withing reach of ordinary people. The concept of a free community computer information service is here.

Victoria is at the forefront of the movement, being the 12th affiliate. So far it is a North American based, with the exception of a board in New Zealand, but the intention is to have a world-wide source of information. There are many on-line databases such as Compu-Serve and Genie, but these charge for on-line time. The Free-Net system is an attempt to provide information without any charges to the user.

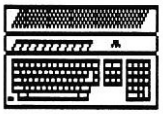
The people behind VIFA are Gary and Mae Shearman. Both have an educational background and are interested in telecommunications. The services provided on VIFA are: Information provided by community organizations, individuals, businesses and government; Electronic mail via the global Internet; Network news, or cybercasting services from Canadian or foreign services; Online public information resources such as library catalogues, weather services, NASA Spacelink and many others. Cybercasting is defined as the distribution of elctronic information to affiliate computer systems from a central computer.

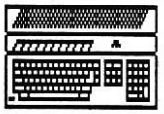
VIFA is incorporated as a non-profit society free to users, so where does the money to operate this service come from? Free-nets are funded by grants and donations from corporations, foundations private citizens and governments. To date, there has been a $25,000 donation of a mini-computer to run VIFA from Sun Microsystems Canada, and $15,000 from Telebit Corporation. Substantial support has been received from Camosun College, Greater Victoria Public Library, Pacific Association for Telematics, Softwords Research International Incorporated, Vancouver Island Advanced Technology Centre and ZED Data. To date, over $50,000 in goods and services have been donated.

See VIFNAon page 9

ST Library Report

by Ted Skrecky





It is time again for another action packed edition of the Garden City A.C.E. Library Report. As usual, we have had a good selection of new magazine donations as follows: Current Notes June 1992 and July/ August 1992 are from Gordon Hooper; Atari Corp 1991 Annual Report, Atari Explorer Summer 1991, ST Informer October 1992, BASICPro March/April 1992 and ST Format June 1992 are from Douglas Skrecky; And Computer Gaming World September 1992 and November 1992 are from Ted Skrecky (That's me!!). To borrow any of the material in the Atari XL/XE & ST Documentation Library all you have to do is pick-up the phone and make an appointment to visit our Magazine Custodian, George Rose (652-0572).

Work on Version 2.8 of the ST Public Domain Software Catalog was completed on December 30th, 1992. This latest edition has occupied a fair chunk of my spare time for the past four months. I think I remember mentioning once or twice a couple of months ago that the release of an updated catalog was imminent. However, I continually kept discovering all sorts of nifty, new public domain and shareware programs that I just had to get into the catalog. If Rowland, our club secretary, hadn't said to me that I should think about doing a "cut-off," it would still be quite sometime before I would have gotten around to using my favourite word processor, ST Writer Elite, to add the descriptions of the new files to our software listing.

There is a total of 16 new disks in the ST software library, bringing us up to Disk #113. The first 10 disks are packed solid with .LZH files. The next 5 disks are a collection .MOD music files. Normally, without a Midi system, computer music is not always that exciting. However, these .MOD files don't contain boring "hoot hoot" and "honk honk" sound chip music. If you try running the player program, which is included on each disk, there is a good chance you will be impressed with the sampled computerized music. And the last disk in the library, Disk #113, has "The Definitive Demo" by the Lost Boys. The Lost Boys are one of the better graphic/ music demo writers.

Some of the new games in the ST library are amazingly good. Why resort to unspeakably evil acts of software piracy when, for the price of a membership in GCACE ($25 per year), you can enjoy PD & Shareware games such as Rookie (DISK #104), a shooting gallery game which features excellent and totally blood-splattering graphics! We also have 2 new Star Trek games. One is called Cold Revenge (DISK #104) which you can play by yourself or, if you have another computer and a midi cable, you can hook 2 computers together and play against a friend. The other Star Trek game is called Star Trek: The Klingon Wars (DISK #106). I still haven't figured it all out but to me it looks like the best Trek game available on the ST. Definitely worth aquiring.

We even have a few games that were supposedly going to be released as commercial software but, due to a bit of good luck (for us, that is), ended up being jetisoned into the Public Domain. One of these games is Ozone (DISK #105), a wocka wocka fantastic 13 level platform puzzle game. Unfortunately, it doesn't have

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any sound effects but that didn't stop ST Format Magazine from giving it a rating of 93%! The other very noteworthy game that almost made it as commercial software is Penguin (DISK #106), a very impressive Lemmings type game. If you enjoy playing games, both Penguin and Ozone should be in your own software library.

And yes, there are many many more desirable games lurking around in the GCACE ST Library. I bet you think Asteroid clones are quite boring but then I doubt you have seen Rayoids (DISK #106). It is a cut above the rest! We also have some good vertical scrolling shoot-em-up games such as Operation Sparrow (DISK #105). Cybernetix (DISK #104) will also keep your eye-balls glued to the monitor screen. The gaming department has definitely been well taken care of in the current update to the catalog.

Besides games, our selection of useful graphic manipulation programs has been substantially increased. Instead of paying up to $100 for commercial art programs, why not get a copy of Crack Art (DISK #102), which works in low and medium rez. It is the best PD art program available for the ST. It runs circles around many commercial programs such as Degas Elite. ST Format gave Crack Art a rating of 94%. It is hard to do much better than that! For owners of monochrome monitors who need an excellent art program, ST Doodle (DISK #102) will do the job. And if you want to edit and clip sections of a picture then you will want XS FX (DISK #102). There are also many other programs in the world of graphics that may be of interest. For example, if you want to convert .GIF pictures over to Atari picture formats then PhotoChrome 3 will do the trick quite nicely. PhotoChrome 3 will give you an astounding maximum of 4096 colours displayed with a regular ST computer and a maximum of 19200 colours displayed with a STE.

Our collection of serious programs, accessories, etc is also growing. In the text editor department there is Alice (DISK #107). I also have a text editor called QED that is a desktop accessory which you can pull down and use whenever you need it, but I forgot to add it to the catalog. I will make sure it gets in next time for sure. Although I only use the Desktop built into my ST machine, it is possible to select an alternative Desktop. Tera Desktop Version 1.06 (DISK #107) gives you differently designed icons, more options, and a faster response time. I found when I took Tera for a test drive, it would almost instantaneously display newly opened windows on the screen. As for databases, we now have Version 1.11 of Fast Base (DISK #107) and Version 2.1 of Super Card (DISK #107). And over in the land of the file archivers there is something that will help you decompress those .ZIP files that can be found on so many of those IBM Bulletin Boards. It is ZIP Version 2.00 (DISK #98).

Anyways, there is lots of new material to ogle at. The library will be open for business at the next general meeting (election night) for the entire 2 hours so bring along some blank disks and we will fill them up for you. Oh ya, and this time we will be doing something different with respect to the distribution of the catalog. Usually you have to come to a meeting to aquire a copy of the catalog but, for Version 2.8 only, we will be mailing the catalog on disk to all members who own ST computers. And no, we haven't forgotten about our loyal 8-bit members. Owners of Atari XL/XE computers will be receiving a copy of the latest GCACE 8-bit catalog. And members who own both Atari computers are going to get both catalogs. Ta For Now....

Diagnosing ST Faults

By: Steven Lemmen

Over the past few years I have repaired and upgraded a fair number of Atari ST computers. During this time I have found a number of problem areas causing malfunctions common to most ST computers. The designers also recognized these faults and designed them out of the machines over the years as the line progressed through the Mega and STE models. Fortunately for owners of the older models these problem areas are all correctable as I explain in the following paragraphs.

> *"...machines, especially computers should work flawlessly, day after day, year after year."*

I have an older 520 ST that I refurbished and upgraded to 2 megs. I've used it steady for a year and a half with nary a problem. What I like best about these older machines is their smaller footprint and that the mouse and joystick connectors are easily accessible on the side.

Starting with the old 520 ST that did not have a built in disk drive and also had an external power pack. These were the most problematic of the ST series of machines. Any one who ever owned one probably knows of the 'drop test'. This was when you picked your machine up six inches off the table and then dropped it. This was supposed to jar the socketed components inside and restore proper connection and operation. I would never recommend this solution for two reasons. First of all you can create just as many new connection problems this way and maybe even crack your motherboard. And secondly, if and when it worked, it was only a temporary solution. The original problem will eventually come back, maybe right when you're working on that important document, spreadsheet, program or other original creative project. To my way of thinking, machines, especially computers, should work flawlessly day after day, year after year. After all that's what machines are for. Hiccuping, glitching or crashing is totally unacceptable behaviour.

All computer problems can be traced to either faulty software or hardware. Faulty software, or bugs, I cannot help you with. But I have found from personal experience that if you document carefully what a software problem's symptoms are, and then write to the company that produced it, a revision that fixes it usually becomes available soon thereafter or may already be available. Often due to a programmer's lack of resources or time to thoroughly test his software, the end users unwillingly become the ones to test and uncover bugs in software products. This is one good reason to always send in your registration cards for software you buy. It gets you on the mailing

list for revision updates to fix bugs and add features for usually nominal costs.

When computer malfunctions are caused by hardware failures, they can be categorized as either breakdowns or design faults. In the case of breakdowns, you must diagnose the part that broke and replace it with a good one of the same type. In the case of a design fault, a change to the design or structure of the device in conjunction with replacing the faulty part is required so that the same fault will not reoccur. We will deal with both types of hardware failures in this article.

Relating again to the original first production 520 ST. Many of the dual in line IC sockets used in these machines only had single metal pins. This meant that the inserted IC's pins were only gripped by metal on one side, with the plastic body of the socket on the other side. These sockets are of very low quality and should be removed and discarded. The sockets used for TOS operating system chips should be replaced with good quality sockets that have metal grips for both sides of the pins. TOS chips should never be soldered direct to the board because this will restrict you too much when you want to upgrade the TOS. For non TOS chips the old sockets should be removed and the chip soldered directly to the board. This problem of sockets with only single metal pins extended into the early release 520 STFM and 1040 STF computers also. I've never seen this problem on 520's with DSDD drives, 1040's with modulators, Mega's or STEs.

Another type of socket problem I've seen on the early 520 ST's is the use of poor quality sockets made from low quality impure steel. This resulted in heavy oxidization and even corroded metal pins in the sockets causing connection problems with the IC chips in them. The metal on these sockets had a dull, rough pock marked look with some even discoloured brown like rust. This was generally the dual in line sockets but also included some square MMU and GLUE chip sockets. Good quality replacement sockets are available at the local electronics suppliers. Best Electronics in the US has excellent gold plated MMU and GLUE chip sockets for $7 US each. The Best Electronics mail order catalog is a treasure house of Atari 8 bit and ST parts and products.

When replacing the sockets, be very careful during unsoldering so as not to damage any of the copper foil traces on the pc motherboard. Use patience and a solder sucker for the bulk of the desoldering. Then use solder braid for any last uncooperative pins that won't come free. Or alternately use a good fine pair of side cutters to cut the socket down to more manageable pieces, even down to individual pins. After all the socket goes in the garbage anyway after you get it out, don't even think of reusing it anywhere, it's garbage.

Another problem I have seen a number of times is an area of bad solder joints on a motherboard caused by a poor solder bath run. This can be caused by either the flux not being applied uniformly or the solder bath not being hot enough to cause proper flowing. This is easy to spot on the bottom of the board. Visually you can see that many solder holes and pins do not have enough solder to fill the hole or the solder joints will have a dull crumbly gray look to them. Other times you can see evidence of flux left by manual soldering by a technician at the end of the assembly line trying to fix it. Though they may fix it to get it through the end of the line diagnostic test, if not repaired properly, problems can show up later after extended use due to internal heat buildup or shaking and jarring of the machine. The best way to repair poor soldering is to remove the old solder in and around affected areas with a solder sucker and then resolder with fresh new solder. I never worry about flux removal after manual soldering. To me this is strictly a cosmetic thing. Though it may not look perfect, functionality is the key word. Beginners beware, use only rosin core solder which is none corrosive and a low wattage pencil type soldering iron. Use of a solder gun and plumbing solder will surely destroy your ST.

Early STs also had problems with the MMU and GLUE chip sockets. In the early models these chips could work their way loose and had to be reseated when they malfunctioned. Then for a short time adhesive pads were put under the chips to stick them to the sockets. These pads would expand with time and aggravate the chip seating problem. Then Atari started using clips on the sockets to hold the chips firmly in place. With all late model STs and STEs, the MMU, GLUE and Blitter chips now seem to come as surface mounted chips soldered directly to the board. Soldered connections are orders of magnitude better than sockets. If you have a machine that uses sockets for these chips and you experience problems, then I recommend the use of the gold plated pin sockets and two criss cross chip clips as available from Best Electronics. This solution is final.

I have found numerous 520ST, 520STFM and 1040STF machines with DMA chip problems. DMA chip malfunctions result in floppy disk and hard drive read and write problems. Sometimes these problems don't show up until you attach a hard drive to your ST. Sometimes reseating the chip in the socket would make it work again suggesting socket pin oxidization problems. I've seen many a machine that had only the

"The Best Electronics Mail Order Catalog is a treasure house of Atari 8- bit and ST parts and products."

VIFNA con't from page 7

Any individual with a computer and modem is welcome to explore VIFA by signing on as "visitor". If you decide to become registered so you can post messages and receive further benefits, there is a registration form on the board that you can download and fill out. When it has been completed, signed and mailed to VIFA you will be able to use the board fully. The number for the VIFA board is 595-2300 for 300, 1200 and 2400 baud modems. It can also be accessed through Internet at the telnet address freenet.victoria.bc.ca

VIFA has many areas to be explored and deserves a look by anyone equipped with a computer and modem. I've noticed that it is very difficult to logon lately (January 10th) because the board at present has only one line, but the Shearmans assure me that they are expecting a donation of 8 phone lines which will alleviate this problem. Give VIFA a try, and see where telecomputing is heading .

ST Faults con't from page 9

DMA chip was socketed and all the other chips soldered in. I suspect that the design and production of DMA chips was problematic and required frequent substitution at the end of the assembly line making sockets desirable. The STE initially came out with same DMA chip and many owners experienced hard drive problems. Then very quickly a newly designed DMA chip was produced and distributed to fix STE problems. This seems to prove my speculation about DMA chips. The DMA chip is the only Atari ST custom designed chip that I've had to replace with any regularity. If you experience floppy or hard drive problems, check out your DMA chip first.

A problem that showed up mainly in Mega ST's when they had 6 chip TOS, a cartridge and/or an accelerator added to them, was intermittent bus bombs. The address buffers (74LS373's) need to be replaced with 74AS373's. Some ST's have SGS (brand) devices, and they are marginally capable of handling the capacitance that expanded devices add to the bus. The 74LS version of this IC is capable of handling 24 milliamps of current. A much faster version of this chip, and one that is capable of handling double the current (48 milliamps) is the 74AS version. Sometimes the problem only shows up when a cartridge is inserted or in use and the six chip set of TOS has been installed where the original set was two chips. This problem does not show up in all machines but whenever I see the SGS brand on the address buffers I feel it is a good precautionary move to replace them. Sometimes the culprit is the MMU or Blitter chip that cannot drive the loaded bus. Substitution with a new chip is the only solution.

One version of the built in ST power supply used the power transistor heat sink as a jumper between two parts of the circuit. In time as the heat sink expanded and contracted many times during heating and cooling after use, the solder joints would crack and become intermittent. This results in the machine going off and on when you bump it. This can be fixed by soldering in a separate wire jumper in place of the heat sink connections. If you just resolder the heat sink then the problem will reoccur in time.

Another variation of the above power supply had an electrical insulating sleeve around the power transistor to isolate it from the heat sink which was connected to another part of the circuit via a mounting screw. This results in poor heat transfer from the power transistor to the heat sink. This eventually results in the power transistor self destructing along with a few other components around it. This can be modified by cutting the copper foil to isolate the heat sink and using a wire jumper to go around it. Then remove the insulating sleeve and apply some heat sink compound to improve heat transfer. If you have one of these power supplies it's better to do this modification as a precautionary measure before the power supply self destructs. It's much less expensive that way.

The power supplies used in the 520STFM, 1040STF and Mega machines were basically unchanged except the addition of a fan to the Mega. This results in the Mega power supply being underpowered when you add internal boards or any other add ons. You can upgrade your power supply by purchasing a new one from Best Electronics, or you can perform a quick modification to add more capacity to your Mega power supply. You will note a 3 pin header on the power supply panel with nothing connected to it. Using a meter you will find that the pins read 5v, ground, and 12v respectively. The 12v supply is very underutilized, so we can use it to help the 5v supply. Obtain a generic 7805 3 pin regulator and bend the pins slightly apart. Now solder the output pin of the 7805 to the 5 volt pin, the middle pin to ground, and the input pin to the 12 volt source. This little mod should go along way to assure that your loaded Mega doesn't suffer from the 5 volt brown out blues.

The ST keyboards, though mushy to some, are of acceptable quality to me. I find that using IBM type keyboards that have a heavy click to them for extended periods of time leaves the tips of my fingertips tingling. This doesn't happen with the ST keyboard. The two main problems I have encountered with ST keyboards is either a broken key stem or intermittent failed keys. The keyboards have a spare unused key stem under the return key, so if you break one, you can disassemble the keyboard and swap this stem with the broken one. Having a broken one under the return key is of no consequence to the operation of it. The problem of the intermittent keys I have seen a number of times and is caused by incomplete soldering of the wire jumpers inside the keyboard. Many wire jumpers are used on the pc board that the keys are mounted on. These are bent over and then seem to be hand soldered. I have found connections that were not soldered at all. They work when the copper pads are new but start to fail intermittently or permanently when the copper foil oxidizes. This fault shows up as a group of keys, usually a diagonal row, on the keyboard that stops working. These pads were obviously missed by the assembler at the factory. Perhaps on a Monday, Friday, or due to daydreaming about owning a TT. When disassembling the keyboard to repair it, lay it on it's back and prop up the two ends so that the keys are hanging loose. Keep track of all the little screws, yes they all have to come out. Be careful when separating the pc board from the keyboard, because all the little silicone plungers are loose and can fall on the floor. Many may be stuck to the pc board. Try not to disturb them, heaven forbid if you have to fit them all back in by hand. Remember that there is a spare under the top of the return key that has no silicone plunger in it, no, you're not short one. Due to disassembly, keyboard repairs are time consuming, patience and care is of paramount importance.

Disk drives of the double sided, 3.5 inch, 720 K variety, are extremely reliable compared to the older 5.25 and 8 inch floppies that came before them. However when problems occur, I've found the best approach to repair if the fault isn't simple is to throw away the mechanism and replace it with any IBM compatible type. It's simple, one of my past articles on disk drive upgrades explains this step by step so I won't repeat any of it here. I'm also working on a future article dealing with other disk drive trivia and tips so I won't discuss them any further here.

Problems with video and monitors can be irritating. Whether you have a colour or monochrome monitor, the video picture should be crystal clear without wavy lines, smudgy characters, colour blotching or any other type of interference. I touched on a number of these video problems in the July/ August 1991 issue of XIO3 so I won't repeat them here. Please refer to that past issue. The two most common faults causing outright failure of monitors is caused by failure of capacitors in the horizontal or vertical deflection circuit or the flyback transformer. Both are usually accompanied by a loud bang, sparks and smoke billowing from the monitor as your picture shrinks to

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a tiny dot in the middle of the screen. The capacitor problem is caused by the use of cheap non-polarized electrolytic capacitors operating close to their rated voltage. Over time the heat inside the monitor dries them out and they fail by shorting out. Along with the bang and the smoke, a few other components wired in with the capacitor are usually stressed and blown too. This usually includes a transistor and diode or two. If you're lucky the high voltage, and high expense, flyback transformer may be ok. Repair of the monitor is then economically possible by replacing the failed parts with higher rated ones. If you're not so lucky and the flyback burns up too, you're in for an expensive repair and may be better off replacing the monitor with a used one.

The most common problem with mice is dirty rollers. Pop the bottom cover, remove the ball and inspect the 3 silver rollers. If they look like they have a black rubber coating, that is dirt. Scrape the rollers till they're shiny clean. The two most common mouse malfunctions are caused by broken wires in the cable or worn out push buttons. Both of these problems are repairable at reasonable cost. That's all I want to say about mice right now. I'm working on a future article focusing strictly on mice.

The most common hard drive problem is corrupted FAT or partition information. This can be caused by power glitches, sloppy software or the old TOS 1.0 and 1.2. These TOS's had bugs in the CRC error detection routines which were fixed in tos 1.4 and newer. If you have a hard drive then I recommend you consider upgrading your TOS. The new TOS also has many other bug fixes and improvements. If retaining the old TOS 1.0 is important to compatibility with old entertainment software, then dual TOS is a possible consideration. I explained how to do this in a past article, and also have a new future article upcoming with a better way of doing this. Always do backups of important information that you have. Also use a utility to backup the FAT and partition information. Good backup habits will ensure a smooth recovery if anything ever goes wrong. I also recommend having a small C: drive and limiting it to boot stuff only. Often it's only the C: drive that gets corrupted. Use defragmentation or tuneup software routinely to optimize your hard drive access times. That's all I want to say about hard drives for now. I'm working on a future article dealing with hard drives, problems and test programs.

That concludes this article on diagnosing ST faults. In all fairness to Atari I should mention that the type of problems I discussed in this article are not unique to Atari. I've found similar problems in other equipment, which helped me diagnose the ST problems and vice versa. Manufacturing and design problems in the electronics industry often are common to many different company's products. If you have any questions on the subject matter presented, please do not hesitate to contact me, telephone advice is always free. Or E-Mail me on the Pothole BBS. Till next time, happy computing !

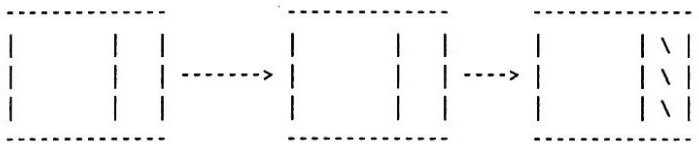
Abstract Data Types

By: Chris Prince

Well after sending in a few programing articles I decided that my contributions to the newsletter need purpose. After six months of sitting in a cave listening to ants discuss Philosophy; I have purpose. I shall write easy to understand articles on various topics in Computer Science and throw in an example program. Not just once, but every newsletter (ya, right).

A Data Type, be those things like 'int', 'char', and 'long' as us C programers call them. The language provides all the operations you need to do just about anything you want. The inner workings of the operations are invisible to the programer. An abstract data type is a combination of other data types (or other abstract data types) that forms another useful 'custom made' data type. There are two parts to any ADT. There is the 'Data type code' this is the stuff that contains the operations and all the inner workings of the ADT; then there is the 'Client Code' This contains the program that uses the ADT, from the view point of the Client Code the inner working of the ADT are invisible.

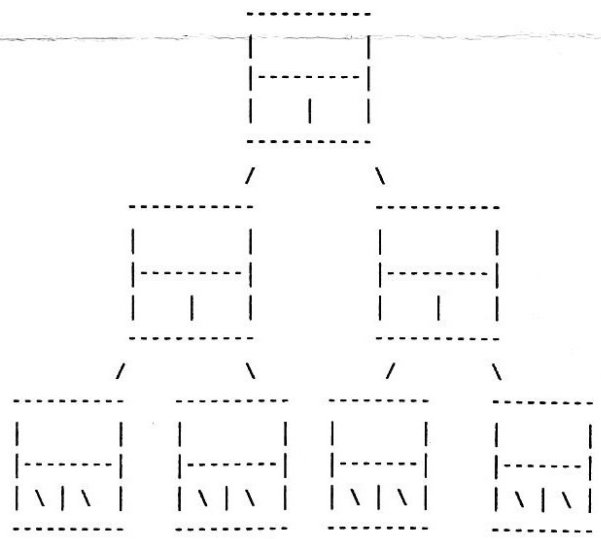
So growing (a foreshadow) on the last article I wrote lets talk about TREES. In my last program there were linked lists and they looked like this:



where each big square thing is a node and each node has an item field and a pointer to the next node and the backslashes means a pointer to NULL. In C the type declarations:

```
struct node {
     itemtype item;
     struct node *link;
}
```

Well if you make a linked list like this



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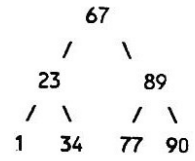
and keep going you would get a binary tree. That is a tree where everything always splits into two pieces. Clearly you can see that to search for something in a binary tree the number of comparisons that have to be made is proportional to the logorythm base two of the number of items in the tree (on average). Whereas the linked list way at the begining the number of comparisons it takes to find something is proportional to the number of items (on average). So you can all see that trees would by really good if there was some really cool properties that let us figure out which branch to go down. Well there is such a proporty but first some terminology. The first node in the tree (top one) is always called the ROOT. The nodes on the ends of the tree that have the two NULL pointers are called leaves (no gardening jokes please). The degree of the tree is the number of edges (pointers/ lines) leaving each node; and the nodes are sometimes called vertices; a nodes subtrees are often called children; and the node above/before any other node is called the parent.

Now, Binary Search Trees! Duh da duh daaaaaaa. If the first thing added to the list gets put in the root and all the stuff less than the root goes to the left and everything greater than the root goes to the right and since each side of the binary tree is also a binary tree the search property can be used. For example if you add 67, 89, 23, 1, 34, 90, and 77 to a Binary Search Tree in that order you would get:



Each left subtree is less than the root, and the root is less than the right subtree. Using this it is easy to search, add, and delete from the tree. The only draw back in the whole thing is that you can't have duplicates.

We all know things possible couldn't be this good. A Binary Search Tree doesn't always come balanced for example chop the 1, 23, 34, and 77 off the tree; all you have is a linked list, which is the worst possible case of a tree. So to avoid this always try to add lists of information in random order, this makes the tree operations much faster.

The OPs

searching -

If you were given a value to find you can compare it with the root. If it is less than the root search the left subtree; if it is equal to the root then you've found it; if it is greater than the root search the right subtree. If you run off the end of the tree (null pointers) then it is not in the list.

adding -

Search for the spot were it should go. If you find it is already in the list you can re-add it or reject it. Otherwise you've found the NULL pointer were it should go.

deleting -

Probably the hardest thing to do not only in Binary Search Trees but in most ADT's. Search for the node to delete. If the node has no children, then simply wipe it out. If the node has one child, then that child becomes the child of the nodes parent and the node is wiped out. If the node has two children then the most consecutively right node in the left subtree is copied into the node to delete and then the deleted from the left subtree.

Simple right.

traversals -

When you list the whole tree there are four ways to do it, pre-order, in-order, post-order, and level- order. In pre-order you would print the root, then the left sub tree in pre- order, then the right subtree in pre-order; if then you re-add them to the tree in the order they were printed you would get the same tree, which is good. With in-order you print the left subtree in in-order, then the root, then the right subtree in in- order; the list produced is in sorted or alphabetical order. In post-order you would list the left subtree in post-order then the right subtree in post- order then the root node; and I haven't the slightest use for this one. Then there is level-order, if you view the tree as a pyramid and the nodes as the blocks that built it, print the top block then the next level, then the next, etc.. This is the hardest to code although I am told it has some uses.

Well here is the ADT code for the dynamically allocated binary search tree implementation of a directory of names and phone numbers (how trendy). The best way to use first and last names with this is to type [last][,][space][first]. This will sort them by last name sub-sorted by first name. Included in the ADT are functions to save and retreive the trees from disk and to print the trees in sorted order.

This file bst.h is a header file which is the ADT if you #include‹bst.h› in to your C program. You can use it and remain free from knowing the inner workings of the tree.

```
#define keylength 30
#define phonelength 30
/*-------------------------------------------------------------------*/
struct node {
        char key[keylength];
        char phone[phonelength];
        struct node *left;
        struct node *right;
};

typedef struct node *BST;

/*-------------------------------------------------------------------*/
/* every ADT should have some sort of init_ function to establish */
/* an empty ADT form                                                 */
/*-------------------------------------------------------------------*/
void init_tree( t ) BST *t;
{
        *t = NULL;
}

/*-------------------------------------------------------------------*/
/* this search function is is particular to the example program  */
/* it is also practical to write a general search procedure that */
/* returns a pointer to the node and write seperate functions to */
/* access specific fields the the structure.                     */
/*-------------------------------------------------------------------*/
void search( t, key ) BST t; char key[];
{
        char name[keylength];
        char phone[phonelength];

        strcpy(name, "  --NOT FOUND--  \0");
        strcpy(phone, "  --NOT FOUND--  \0");

        while(t != NULL) {
                if(strcmp(t->key, key) == 0) {
                        strcpy(         name, t->key);
                        strcpy( phone, t->phone);
                        t = NULL;
                }
                else if (strcmp(t->key, key) > 0)
                        t = t->left;
                else if (strcmp(t->key, key) < 0)
                        t = t->right;
        }

        printf("               Name  : %s\n",name);
        printf("               Phone : %s\n",phone);
}

/*-------------------------------------------------------------------*/
/* The add functions is recursive if the ptr is NULL then you    */
/* want to put the information 'where the pointer is' otherwise */
/* it is added to either the right or left subtrees by calling  */
/* the add function with t->left or t->right                     */
/*-------------------------------------------------------------------*/
void add( t, keytoadd, phonetoadd ) BST *t; char keytoadd[]; char phonetoadd[];
```

```
{
        BST ptr, temp;
        ptr = *t;

        if ( ptr == NULL ) {
                ptr = (BST)malloc(sizeof(struct node));
                ptr->left = NULL;
                ptr->right = NULL;
                strcpy(ptr->key, keytoadd);
                strcpy(ptr->phone, phonetoadd);
        }
        else if ( strcmp(ptr->key, keytoadd) > 0 ) {
                temp = ptr->left;
                add( &temp, keytoadd, phonetoadd );
                ptr->left = temp;
        }
        else if ( strcmp(ptr->key, keytoadd) < 0 ) {
                temp = ptr->right;
                add ( &temp, keytoadd, phonetoadd );
                ptr->right = temp;
        }
        *t = ptr;
}
/*-------------------------------------------------------------*/
/* The third case in the delete is the trickest one, deleting a */
/* that has two childern, it can be writen recusivly like the   */
/* two cases but it a bit a effort and work to debug            */
/*-------------------------------------------------------------*/
void delete_entry( ptr, keytodel ) BST *ptr; char keytodel[];
{
        BST t,nodetofree;
        t = *ptr;

        if (t == NULL) {
                printf("\n%s, is not in the list\n",keytodel);
        }
        else if (strcmp(keytodel, t->key) < 0) {
                nodetofree = t->left;
                delete_entry( &nodetofree, keytodel );
                t->left = nodetofree;
        }
        else if (strcmp(keytodel, t->key) > 0) {
                nodetofree = t->right;
                delete_entry( &nodetofree, keytodel );
                t->right = nodetofree;
        }
        else {
                if ((t->left == NULL) && (t->right == NULL)) {
                        free(t);
                        t = NULL;
                }
                else if (t->left == NULL) {
                        nodetofree = t;
                        t = t->right;
                        free(t);
                }
                else if (t->right == NULL) {
                        nodetofree = t;
                        t = t->left;
                        free(t);
                }
                else {
                        BST temp1, temp2;
                        temp1 = t->left;
                        while (temp1->right != NULL)
                                temp1 = temp1->right;
                        strcpy(t->key, temp1->key);
                        strcpy(t->phone, temp1->phone);
                        if (temp1 != t->left) {
                                temp2 = t->left;
                                while (temp2->right != temp1)
                                        temp2 = temp2->right;
                                temp2->right = temp1->left;
                        }
                        else
                                t->left = temp1->left;
                }
        }
        *ptr = t;
}

/*-------------------------------------------------------------*/
/* Note the inorder traversal is recursivly functions involving */
/* BST traversals are very difficult to code non-recursivly     */
/*-------------------------------------------------------------*/
void printlist( fptr, t ) FILE *fptr; BST t;
{
        if (t != NULL) {
                printlist( fptr, t->left );
                fprintf(fptr, "%s     %s\n\r", t->key, t->phone);
                printlist( fptr, t->right );
        }

}

/*-------------------------------------------------------------*/
/* save tree uses a pre-order traversal write the tree to the  */
/* file pointed to by fp.  Using pre-order in the save lets you*/
/* easily write the load_tree procedure so that the freashly   */
/* loaded tree is the same as the orignal tree                 */
/*-------------------------------------------------------------*/
void savetree( fp, t ) FILE *fp; BST t;
{
        if ( t != NULL) {
                fprintf(fp, "%s\n", t->key);
                fprintf(fp, "%s\n", t->phone);
                savetree( fp, t->left);
                savetree( fp, t->right);
        }
}

/*-------------------------------------------------------------*/
/* the load tree function is simplified greatly by using the    */
/* add function.  This is one function that I have always found */
/* easier to write non-recursivly                               */
/*-------------------------------------------------------------*/
void loadtree( fp, t ) FILE *fp; BST *t;
{
        BST temp;
        char name[keylength];
        char phone[phonelength];

        init_tree( &temp );
        while ( !feof( fp ) ) {
                fscanf(fp, "%s\n",name);
                fscanf(fp, "%s\n",phone);
                add( &temp, name, phone );
        }
        *t = temp;
}
```

This is an example program which lets you file your phone numbers with the binary search tree ADT.

```
#include <stdio.h>
#include "bst.h"

displaymenu()
{
        printf("\033E\033f\n\n\n\n\n\n\n");
        printf("                    ~~~~~~~~~~~~~~~~~~~~\n");
        printf("                    | a)dd name        |\n");
        printf("                    | d)elete name     |\n");
        printf("                    | l)ook up name    |\n");
        printf("                    | s)ave list       |\n");
        printf("                    | r)etrieve list   |\n");
        printf("                    | p)rint list      |\n");
        printf("                    | q)uit            |\n");
        printf("                    ~~~~~~~~~~~~~~~~~~~~\n\n");
        printf("                    Enter choice -> \033e");
        return(1);
}

main()
{
        char name[30];
        char phone[20];
        BST t;
        char i;
        FILE *fp;

        init_tree( &t );

        for(;;) {
                displaymenu();
                i = (char)getc(stdin);
                while(getchar() != '\n');

                if((i=='a')||(i=='A'))  {
                        printf("        Enter new name -> ");
                        gets(name);
                        printf("        Enter new phone -> ");
                        gets(phone);
                        add( &t, name, phone);
                }
                else if((i=='d')||(i=='D')) {
                        char key[30];
                        printf("        Enter name to delete -> ");
                        gets(key);
                        delete_entry( &t, key );
                }
                else if((i=='l')||(i=='L')) {
                        char key[30];
                        printf("        Enter name to look up -> ");
                        gets(key);
                        printf("\n\n");
                        search(t, key);
                        printf("\n\n");
                        printf("\n                              <Press Return> \n\r");
                        while(getchar() != '\n');
                }
                else if((i=='r')||(i=='R')) {
                        char filename[80];
                        printf("Enter file name -> ");
                        gets(filename);
                        if ((fp = fopen( filename, "r"))==NULL)
                                printf(" file open error\n");
                        else {
                                loadtree(fp, &t);
                                fclose(fp);
                        }
                }
                else if((i=='s')||(i=='S')) {
                        char filename[80];
```

```
                printf("Enter file name -> ");
                gets(filename);
                if ((fp = fopen( filename, "w"))== NULL)
                        printf(" File open error \n");
                else {
                        savetree(fp, t);
                        fclose(fp);
                }
        }
        else if((i=='p')||(i=='P')) {
                if ((fp = fopen( "prn:", "w")) == NULL)
                        printf(" Printer error \n");
                else {
                        printlist( fp, t );
                        fprintf(fp, "\n\n");
                        fclose(fp);
                }
        }
        else if((i=='q')||(i=='Q'))
                exit(0);
    }
}
```


Tesseract
Computer Systems & Software

RICHARD PETERSON

City Centre Plaza
204 - 1483 Douglas Street
Victoria, B.C., Canada V8W 3K4
FAX (604) 386-2515
PH. (604) 382-3475

Communication Between the XE and ST using ST-XFORMER

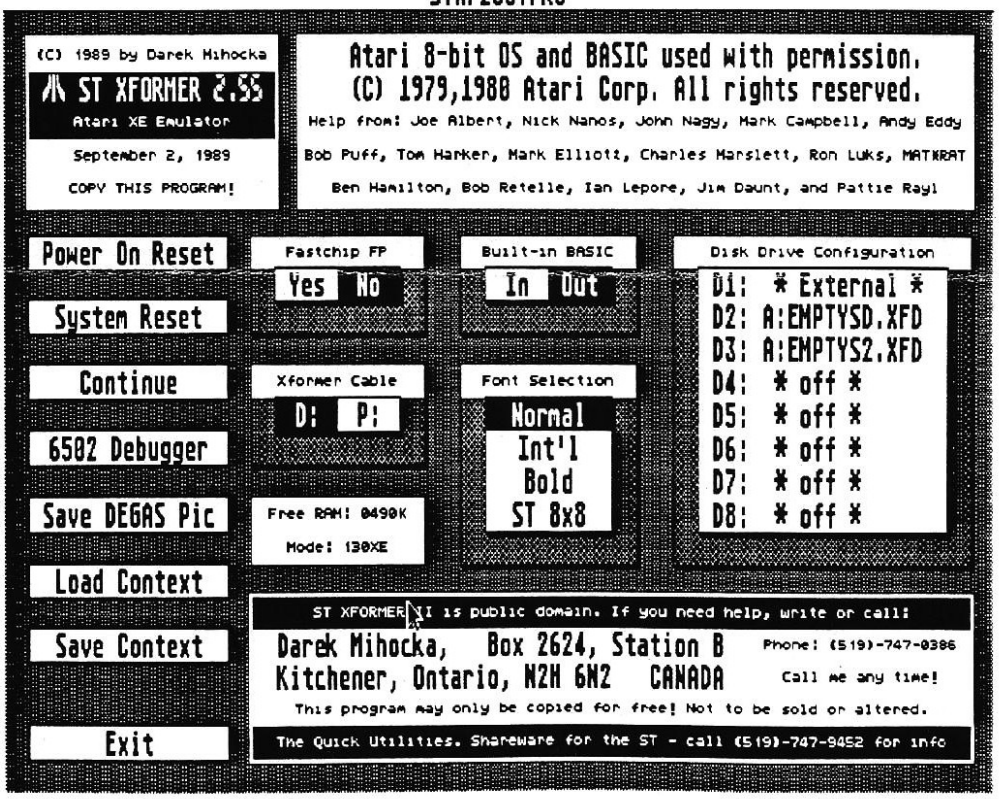
By: Rowland Grant

Xformer is software that enables an Atari ST to emulate an Atari 130XE. It was written by Dareck Mihocka, a Canadian who is now working for Microsoft in Washington. I had read about Xformer, and was intrigued by the possibility of transferring files directly from an 8-bit disk to a ST disk. So I sent to Best Electronics for an Xformer setup. I received a disk containing Xformer version 2.55, a cable which connects an Atari 8-bit drive to the ST's printer port and a twelve page instruction booklet. Right away I connected my Indus drive to the ST and clicked on STXF255.PRG.

The Xformer desktop appeared on the screen. There were a number of parameters to set up. I set BASIC off, Fastchip off and Xformer cable as D:. Then I configured drive D1: as the external (Indus) drive. I put MYDOS into the Indus and clicked on the 'Power on reset' button. The 40 column screen came up and hung there. I tried all sorts of DOS and boot disks, nothing. I went through the usual checks for the obvious. Finally, I checked out the cable for continuity. Sure enough, the cable did not correspond to the pinout data given in the instructions. The printer plug had been wired as a printer socket. Fortunately the cable was easy to disassemble and rewire.

Now the Indus drive responded and MYDOS came up. I found that all the DOS's that are compatible with DOS 2 ran without any trouble. But I couldn't get Sparta DOS to go. Also Turbo BASIC ran, but it would only load part of a program file. Built-in Atari BASIC worked fine. PaperClip wouldn't run, but Atari Writer seemed to work. And so on. Anyway, since

STXF255.PRG



I already have three Atari 8-bit systems, I don't need ST Xformer to run my 8-bit software. I just wanted to transfer files.

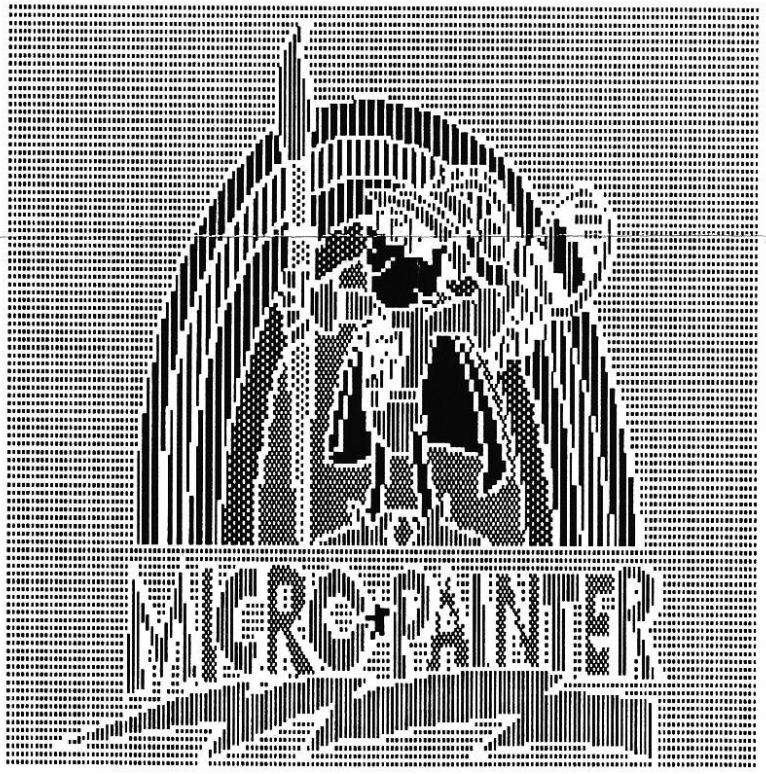
Dareck has set up a device "F:" in the emulated XE device table to access the ST drive A. So to transfer files one uses DOS to copy a file from D1: to F:, or from F: to D1:. I found a text file that had been converted to ASCII in my 8-bit collection and copied it to device F:. Then I went to the Xformer menu (press F5) and clicked on Exit. The regular GEM desk top came up, and showed my transferred file. I clicked on it and read the displayed text. Hey, it worked! Back to Xformer, I copied a Word Perfect ASCII file from F: to D1:. I then copied this file to E:, and there was the text scrolling on the XE screen. So Xformer is a practical way to convert 8-bit text files to ST files for the newsletter. It is more convenient and a lot faster than transferring files via the bulletin board or by null modem.

Gordon Hooper had some ASCII files that he intended for the newsletter. I offered to copy them onto a ST disk. Gord came over and I went through the motions with Xformer. Everything seemed to be working fine, the computer wrote to the new formatted ST disk. However, when I exited Xformer and checked the disk, therewas nothing in the directory. I tried several times, but no go. Frustrating! Embarassing!

When Xformer copied to the ST disk it didn't update the directory. But how did it work before? Hah! In my original test I used a disk that contained the Xformer program file STXF255.PRG that I was running. Preparing a new ST disk with just the Xformer file on it, and running Xformer from that disk, I found that I could transfer 8-bit files to it as expected. However, using a different disk, the directory wouldn't update. One trial did update the directory, in fact Xformer wrote the whole directory of the Xformer boot disk over to the new disk. But all the files were empty except the text file that I wanted to transfer. It seems that there is a bug in my version of Xformer. However it is easy to work around. I wouldn't trust it on my hard drive though!

Another feature of Xformer that might be useful is its ability to capture images from the XE screen. These are saved in DEGAS format, either colour or monochrome. To test this I ran Micropainter from a "virtual" disk. A virtual disk is an ST file on the Xformer disk. These files, with extender .XFD, can emulate any XE disk capacity. In this case I copied an empty 90K file to the Xformer ST disk, renamed it Micpaint.XFD. Then running Xformer, I configured D2: to correspond to that file. Then I used DOS to duplicate the Micropainter disk in real drive D1: to the virtual drive D2:. Now, back in the Xformer menu, I switched the drive designations so that the Micropainter virtual disk was D1:. Doing a reset with BASIC out, the system booted up with Micropainter. I didn't try to draw anything. But I loaded a Micropainter picture file. With an image displayed on the XE screen, I went to the Xformer menu and clicked on Save Degas Pic. I result was a monochrome picture file STXF001.PI3 on the ST disk. This picture format can be used by publishing programs such as Calamus.

Xformer has many clever features. It is interesting to experiment with. A colour monitor works best with Xformer but it does support monochrome. You don't have to pay for the software. Darek Mihocka has kindly released Xformer to the public domain and it is in the Club library. I have prepared a screen dump of the Xformer desktop. This illustrates the various options available. A Micropainter picture, saved by Xformer, is also displayed. And of course, I am writing this article on my Atari 800XL using PaperClip.



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